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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/871,618

06/04/2001

Fang-Chuan Ho

0941-0267P

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2292

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10/06/2003

BIRCH STEWART KOLASCH & BIRCH

PO BOX 747

FALLS CHURCH, VA 22040-0747

EXAMINER

ERDEM, FAZLI

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/871,618

Applicant(s)

HO ET AL.

Examiner

Fazli Erdem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. ^{use} Claims 1-3⁴ rejected under 35 U.S.C. 103(a) as being unpatentable over Butterworth et al. (6,498,632) in view of Dultz et al. (6,331,910) further in view of Bryars (5,986,815) further in view of Takanashi et al. (5,502,490).

Regarding Claims 1-3, Butterworth et al. disclose a color reflective ferroelectric liquid crystal light valve with three spatial light modulators and increased light throughput. Ferroelectric liquid crystal based light valve comprises a light input, a light output, a beam splitter, a color separator, reflective spatial light modulators, and a switchable half-wave plate. Light polarized to a first direction is received through the light input. Light from the light input and reflected by the spatial light modulators is output from the light output. The reflective spatial light modulators are structured as quarter-wave plates. The beam splitter has orthogonal directions of maximum transmissivity and maximum reflectivity, one of which is parallel to the first direction. The beam splitter is located and aligned relative to the light input, the light output, and the color separator to transmit or reflect the light from the light input towards the color separator, and the to reflect or transmit, respectively, towards the light output the reflected by each of the spatial light modulators and having direction polarization substantially orthogonal to the first direction. The switchable half-wave plate is located between the beam splitter and the

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color separator is structure as half-wave plate. The switchable half-wave plate inverts the sense of the light valve during the balance period of each display period to enable the light wave to generate a positive image, and therefore be illuminated, during the balance period in addition to during the illumination. Butterworth et al. fail to disclose the required electric field characteristics, light wavelength characteristics, and sequential characteristics. However, Dultz et al. disclose an arrangement and method for electrically controlling the intensity of unpolarized light where the required electric field characteristics are disclosed. Furthermore, Bryars, discloses systems, methods and apparatus for improving the contrast ratio in reflective imaging systems utilizing color splitters where the required light wavelength characteristics are disclosed. Takanashi et al. disclose a display unit having a light-to-light conversion element where the require sequential structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required electric field characteristics, light wavelength, and sequential characteristics in Butterworth at all. as taught by Dultz et al., Bryars et al., and Takanashi et al respectively in order to have a semiconductor display device with better performance.

2. Claims 4-18^{are} rejected under 35 U.S.C. 103(a) as being unpatentable over Butterworth et al. (6,498,632) in view of Dultz et al. (6,331,910) further in view of Bryars (5,986,815) further in view of Aritake et al. (6,478,429) further in view of Takanashi et al. (5,502,490)

Regarding Claims 4-18, Butterworth et al., Dultz et al., and Bryars et al. fail to disclose the required prism and sequential structure in the required manner. However, Aritaket et al.

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disclose a reflective projector where the required prism in the required manner is disclosed.

Furthermore, Takanashi et al. disclose a display unit having a light-to-light conversion element where the required sequential structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required prism and sequential structure in the required manner in Butterworth et al. , Dultz et al., and Bryars as taught by Aritake et al. and Takanashi et al. respectively in order to have a semiconductor display device with better performance.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

FE


NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800